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Estimation of the relationship between the time delay of mastectomy and the stage of breast cancer among a group of infected Iraqi females

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Abstract

This study assesses the delay of mastectomy"time from the first consultation of a doctor to the time of mastectomy"and its relationship with the stage of the disease among Iraqi women with breast cancer.A study was carried out on (113) women who were referred to the Outpatient Clinic of the Oncology Teaching Hospital and the Iraqi National Cancer Research Center, University of Baghdad, for the period from 2012 to 2016.Patients' age range between (40-49) years comprised (60.2%) of cases, and showed advanced tumor stage (62.96%)of stage III.It was found that infiltrating ductal carcinoma was the most common type of breast cancer that found in (77%) of cases.

Mostly there was no delay of mastectomy for more than one month delay in (36.3%) of patients, while other patient's delay periods of mastectomy were distributed as : 1-3 months delay in (20.3%), 4-6 months delay in (14.2%),7-9 months delay in (8.8%), 9-12 months delay in (0.8%) and 12 months delay in(8.8%) of the patients. The percentage of the residual patients which had delay longer than one year, (2-9 years delay), was (10.6%) patients. Most patients (73%) were of stage III while others (17.6%) were of stage I, and (7.4%) were of stage II. Statically, correlation coefficient between the delay of mastectomy and the stages of the disease was significant with stage III.

Results showed that (short time delay) was associated with higher stage of the disease,(79%) of patients were of stage III, while (53%) of patients with long time delay had stage III . It seemed to be that long time delay correlated with lower stages at the time of identification which goes with most of the published papers.

Results showed that the time delay of mastectomy seems not to be a serious problem in Iraq during the period of the current study. Only few studies are carried out in this field especially in the city of Baghdad, therefore, Further studies are required to explore the factors that are associated with different types of delay.

Keywords: Delay, mastectomy, stage, Breast Cancer, Iraqi female.

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وقت التاخير في عملية اسئصال الثدي وعلاقته بمرحلة مرض سرطان الثدي بين مجموعة من النساء العراقيات المريضات

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الخلاصة

ان الهدف الرئيسي من هذه الدراسة هو لتقييم تأخير استئصال الثدي وعلاقته بمرحلة سرطان الثدي بين النساء العراقيات المصابات به. أجريت الدراسة على (113) امرأة تمت إحالتهن إلى العيادة الخارجية لمستشفىالأورام التعلمي / دائرة مدينة الطبوالمركز الوطني الريادي لبحوث السرطان / جامعة بغداد في العراق للفترة من 2012 إلى 2016.

في الغالب لم يكن هناك أي تأخير في استئصال الثدي لأكثر من شهر واحد بنسبة (36.3 ٪) من مريضات سرطان الثدي ، في حين كانت اوقات التأخيرالاخرى لعملية استئصال الثدي لدى المريضات كما يلي: 1–3 أشهر تأخير بنسبة (20.3 ٪) ، 4–6 أشهر تأخير بنسبة(14.2 ٪) ، 7–9 أشهر تأخير بنسبة(8.8 ٪) ، 9–12 شهرا تأخيربنسبة(0.8 ٪) و 12 شهرا تأخير نسبة(8.8 ٪) من المريضات. كانت النسبة المئوية لبقية المريضات اللواتيتأخرن لمدة تزيد عن عام واحد ،(2–9 سنوات تأخير), بنسبة(10.6 ٪).اغلب المريضات(73%) في المرحلة الثالثة من المرض بينما كانت البقية (17.6%) في المرحلة الاولى و(7.4%)في المرحلة الثانية.معامل الارتباط بين تأخر استئصال الثدي ومراحل مرض سرطان الثدي كان مقنعا مع المرحلة الثالثة،ووجد أن سرطان القنوات المنتشر هو النوع الأكثر شيوعًا من سرطان الثدي بنسبة(77٪)، وتراوحت أعمار المرضى بين 40 و 49 سنة بنسبة (60.2٪) وأظهرت مرحلةالورم المتقدمة نسبة(62.96٪ من المرحلة الثالثة). وقدأظهرت النتائج أن التأخير الزمني القصير لا يبدو مشكلة خطيرة في العراق خلال فترة الدراسة الحالية ، وتبين أنه مرتبط بمرحلة متقدمة من المرض حيث كانت نسبة المريضات (79%) في المرحلة الثالثة من المرض,بينما في التاخير الطويل كانت نسبةالمريضات (53%) في مرحلة المرض ذاتها, لذا يبدو ان التأخير الطويل يرتبط مع انخفاض مرحلة المرض في وقت التشخيصوالذييتماشى مع معظم البحوث العلمية المنشورة.

في العراق ، لم يتم إجراء سوى عدد قليل من الدراسات في هذا المجال خاصة في مدينة بغداد، لذلك، هناك حاجةإلى مزيد من الدراسات لاستكشاف العوامل المرتبطة بأنواع مختلفة من التأخير.

I. Introduction

Breast cancer is a disease with tremendous public health significance. In the USA, almost 232670 of females with breast cancer were identified in 2014, from which 40000 women died of this cancer, making it the second most leading cause of cancer deaths in females[1].

In Iraq, during the year 2012, about 4115 cases of breast cancer were reported in the Iraqi Cancer Registry, which constituted about 34% of the registered female cancers, with an incidence approximating 22 per 100000 female populations [2].

Breast cancer's Primary prevention is available but in extreme measures like a prophylactic mastectomy for women who are genetically susceptible, so, early detection is the major concern to fight this cancer. The aim of early detection is to diagnose and treat breast cancer patients in its earliest stage where the prognosis for long-term survival is at its best. It is very important to shorten the detection delay; diagnosis and treatment. Longer waiting intervals prior to diagnosis and then the initiation of the treatment is of prognostic concern if delay leads to a stage worsening; disease progression or therapy complications [3]

There are two major delay types: Patient delay when seeking medical attention after the discovery of initial breast cancer symptoms, or failure in keeping appointments while system delay is specifically within the healthcare institution in scheduling appointments; executing diagnostic steps to receive the final diagnosis and starting therapy, both of which, could worsen the prognosis [4].

A complete review of a literature on the delay in breast cancer which was carried out in early 90s contained several components [3]; it explored the studies that evaluated the relationship between the delay and the prognosis. The importance of patient delay factors that are associated with long delay times, it also made the same as with system delay. Since that time, a number of review papers had been published to explore the factors that are associated with long times delay[5-7].

Earlier researches on the impact of delay on the prognosis showed that the longer delay is associated with a more advanced stage of cancer at the time of diagnosis, thus resulting in fewer chances for survival. A meta-analysis of 87 studies had suggested that females who began treatment 3-6 months after the emergence of breast cancer related symptoms had drastically worsen the survival rates than patients who waited< three months [8] .

The aim of this study assesses the delay of mastectomy" time from the first consultation of a doctor to the time of mastectomy" and its correlation with the stage of disease among Iraqi women with breast cancer

II. Methods:

2.1Collection of Patients' Database:

This task was approved by The National Cancer Research Center / University of Baghdad, Iraq, on June 25th, 2017.

The study included 113 of random female cases aged (30–79) years who diagnosed with different types of breast cancer and registered in the Iraqi National Cancer Research Center / University of Baghdad. Those cases were initially obtained from the Oncology Teaching Hospital / Ministry of Health, Iraq, the place in which they had been diagnosed and treated during the period from 2012 to 2016. All necessary patients' data regarding the date of diagnosis ; date of surgery (mastectomy) ; age, site of tumor , distant metastases, tumor size ,histological type and stage of the disease , in addition to radiological reports in registry of breast cancer center .

2.2Statistical analysis:

Correlation coefficient between delay time of mastectomy and the stage of the disease of breast cancer was calculated and for statistical procedures, version 23 of SPSS software was used in the current study.

III. Results

In this study, delay time of mastectomy was investigated. Results showed that, mostly there was no delay more than one month "at the same month" among 41/113(36.3%) of patients, while in other patients, time delays were distributed as the fallowing : 1-3 months delay in23/113(20.3%) of patients , 4-6 months delay in 16 /113(14.2%) of patients,7-9 months delay in10 /113(8.8%)of patients, 9-12 months delay in1/113(0.8%) of patients and 12months delay in10/113(8.8%) of patients; the percentage of the residual patients which had a time delay longer than one year(2-9 year) was 12/113(10.6%)of patients(Table-1)

Association between delay time of mastectomy and the stage of the disease were investigated. 54/74 (73%) of patients were of stage III, while only 13/74 (17.6%) of patients were of stageI, 4/74(7.4%)were of stageII and one patient was of stage IV(Table-1).A correlation coefficient between the delay time of mastectomy and the stages of breast cancer were as the following: correlation was significant(-915) with stage III while it was not significant with stage II (-500) and stage I (-375).(Table-1)

In the current study, delay time of mastectomy among breast cancer patients can be classified into two groups: short delay time, found in those with delay periods of ≤ 12 months which had more advanced disease,45/57(79%)of patients of stage III, than those with long delay time of ≥ 12 months , 9/17(53%)of patients of stage III,(Table-1)

Table1-Association between delay time of mastectomy and the stage of the disease

Delay time between date of diagnosis and date of mastectomy	No.	Percentage	Stage0	I	II	III	IV	Unknown
Same month	41	%36.3	1	5	4	19	0	12
(3-1)months	23	%20.3	0	0	0	9	0	14
(6-4)months	16	%14.2	1	0	0	10	0	5
(9-7)months	10	%8.8	0	1	0	6	0	3
(12-9)months	1	%0.8	0	0	0	1	0	0
1year	10	%8.8	0	5	0	4	1	0
2year	6	%5.3	0	2	0	2	0	2
3year	3	%2.6	0	0	0	2	0	1
4year	1	%0.8	0	0	0	1	0	0
5year	1	%0.8	0	0	0	0	0	1
9year	1	%0.8	0	0	0	0	0	1
Total	113	%100	2	13	4*	54**	1***	39

(%17.6) *of patients were in stage I and correlation coefficient was (-375). ** (7.4%) of patients were in stage II and correlation coefficient was (-500). *** (73%) of patients were in stage III and correlation coefficient was significant (-915) at the 0.01 level, 2-tailed.

Other findings ,the most common type of cancer in our study population was the infiltrating ductal carcinoma which diagnosed in : 87 out of 113 (77%)of cases, while 2 out of 113 of cases were detected as lobular carcinoma compromising about(1.8%) as shown in (Table-2)

Table2- Distribution of cases according to the types of breast cancer.

Type of Cancer	Number of cases	percentage
Carcinoma, metastatic, NOS, Secondary carcinoma	2	%1.8
Come do carcinoma, non-infiltrating	1	%0.9
Infiltrating ductal carcinoma, NOS	87	%77
Infiltrating ductal mixed with other types of carcinoma	1	%0.9
Intra ductal carcinoma, non-infiltrating, NOS	1	%0.9
Lobular carcinoma, NOS	2	%1.8
Other types of carcinoma	19	%16.8
Total	113	%100

Results showed that out of 113, 68 (60.2%) of the patients were within age (40-49) years(Table-3)

Table3-Association between patient's age and Mastectomy delay time.

Delay time between date of diagnosis and date of mastectomy	No.	Age Groups at the time of diagnosis (39-30)	(49-40)*	(59-50)	(69-60)	(79-70)
Same month	41	6	19	105		1
(3-1)months	23	1	19	21		0
(6-4)months	16	3	11	20		0
(9-7)months	10	0	6	31		0
(12-9)months	1	0	1	00		0
1year	10	2	4	22		0
2years	6	0	5	10		0
3years	3	1	2	00		0
4years	1	0	1	00		0
5years	1	0	0	10		0
9year	1	1	0	00		0
Total	113	14	68	21	9	1

(%60.2) *of patients werewith age group (40 – 49).

Further, Patients within age group (40-49) showed high frequency of advanced tumor stage, i.e. 34 (62.96%) out of 54 of stage III ,patients were within age group (40-49) (Table-4).

Table4-The relationships between the age groups and the tumor stages

Age Groups at the time of the diagnosis / The tumor stage	0	I	II	III	IV	Unknown
(39-30)years	1	3	0	7	0	3
(49-40)*years	1	5	0	34	0	28
(59-50)years	0	4	3	8	0	6
(69-60)years	0	1	1	4	1	2
(79-70)years	0	0	0	1	0	0
Total	2	13	4	54	1	39

(%62.96)*of patients with age group (40-49) were in stage III

IV. Discussion

In Iraq, the commonest type of malignant tumors is the breast cancer[2].In this study , the time delay of mastectomy "differences between the onset of the diagnosis and mastectomy date" were investigated. It was carried out on 113 patients with breast cancer. Mostly there was no delay of mastectomy for more than one month delay occurred in (36.3%) of patients, while other patient's delay periods of mastectomy were distributed as : 1-3 months delay in (20.3%) of patients, 4-6 months delay in (14.2%) of patients,7-9 months delay in (8.8%) of patients, 9-12 months delay in (0.8%) of patients and 12months delay 10/113(8.8%) of patients. These Results of short delayers showed that the time delay of mastectomy seems not to be a serious problem in Iraq during the period of current study. Patients with longtime delay, more than 12 months delay, found in 12/113(10.6%)of patients and it may occurred due to money shortage or long queues for mastectomy.

During the current study, delay time of mastectomy was highly associated with the advanced stage of the disease as shown in our results :54/74 (73%) of patients were of stage III, while only 13/74 (17.6%) of patients were of stage I, 4(7.4%) of stage II and one patient was of stage IV. Statistically, the correlation coefficient between delay times of mastectomy and the stage of the breast cancer was significant with stage III (-915), while it was not significant with other stages.

The main histological type was ductal carcinoma (77%) and this agrees with previous reports [9]. Approximately (60.2%) of the breast cancer patients were diagnosed at age (40-49) years and this agrees with other researches [9-11]; accordingly, (73%) of these patients were presented in advanced stage (III .(

Short delay time($\leq$ 12 months) was associated with higher stage of the disease ,(79%) of patients were of stage III, while patients with long time delay($\geq$ 12 months)were occurred in (53%) of patients of stage III. It seemed to be that long time delay associated with lower stages and this goes with other reports [12-15]. An aggressive behavior of the lump may suggest cancer to the doctor and patient, while a slowly growing lesion or other symptoms could be less obvious. If that was the denominator, then one would anticipate seeing less delay in women with symptoms that are more cancer suggestive. So, the behavioral characteristics of the tumor might be attributed to the poorer survival, in opposite to short time delay, another possible reason that, the study did not have long delayers with "enough" influential power.

Delay of Diagnosis may be influenced by complex interactions between many factors. Early detection of breast cancer is required through the promotion of awareness and education; diagnosis and treatment before the tumor enlarge and spread remotely. Most young females detect their breast cancers, and most do not experience long delay times prior to diagnosis. Women with fewer resources are more likely to delay seeking medical attention for self-detected breast lesions. Diagnosis and treatment delay of breast cancer may contribute to extra deaths among African Americans. In one study, racial differences in delays in diagnosis and surgical treatment for early-stage breast cancer were examined and evaluated the race-specific predictors associated with delay. It was found that larger tumors were associated with a lower possibility for a surgical delay and in the overall study sample, lower education level, smaller tumor size, and mastectomy were additional predictors of surgical delay [16].

In spite of the prevalence of other studies suggestions that there is a correlation between the long delay times and poorer survival rates, taking in consideration the results for the more recent joint studies, it is hard to find a case in either ways for longer delay that leads to reduced survival. It seems obvious that longer delay times must be associated with earlier stages of cancers and/or increase survival rates

compared to shorter time delays. However, numbers of possible explanations for this phenomenon are present. Diagnostic obstacles could perhaps take place in this survival paradox [17].
In Iraq, few studies are observed in this field, especially in the city of Baghdad, therefore, Further studies are required to know the factors that are associated with different types of delay such as diagnostic delay; patient delay (time lapsed from the onset of the first symptoms to doctor's first consultation ; treatment delay and mastectomy delay.

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